

REMARKS

Upon entry of this amendment, claims 1-3 and 62 are pending in the instant application. Claims 4-6 and 63-66 have been cancelled herein without prejudice or disclaimer, and Applicant reserves the right to prosecute that subject matter, as well as the originally presented claims, in continuing applications. Claims 1, 2, and 62 have been amended. Support of the claim amendments presented herein can be found throughout the specification and in the claims as originally filed. For example, support for the proteins and peptides recited by the pending claims, as amended herein, is found at least at page 11, lines 26-30; at page 15, lines 1-4; and in claim 1 as originally filed. Support for the variants that include "an ankyrin-repeating region having an amino acid sequence comprising amino acid residues 122-222 of SEQ ID NO:11," as recited by amended claim 62, is found at least at page 5, lines 24-33; at page 22, lines 9-13; page 45, lines 15-27; and in Figures 3 and 3b. Accordingly, no new matter has been added by these amendments.

1. Election/Restrictions

The Examiner has indicated that claims 7-61 and 67-76 have been withdrawn from further consideration as being drawn to nonelected inventions.

Applicants note that claims 7-61 and 67-76 have been cancelled herein. Applicant reserves the right to prosecute that subject matter, as well as the originally presented claims, in continuing applications.

2. Oath/Declaration

The Examiner has objected to the oath or declaration as defective because "non-initialed and/or non-dated alterations have been made to the oath or declaration."

Applicants submit herewith a new Combined Declaration and Power of Attorney in compliance with 37 C.F.R. 1.67(a), which has been executed by each of the named inventors of the instant application.

3. Claim Objections

The Examiner has objected to certain informalities in claims 2 and 5. In particular, the Examiner has objected to claim 2 because the phrase “wherein the cells are BLS cell line, Na cell line or Ba cell line” appears to be missing the word “from” after the word “are”. The Examiner has also objected to claim 5 because the phrase “in another species than human” is awkward. (Office Action at page 2).

Applicants note that claim 2 has been amended herein to recite that the cell from an MHC-II deficiency patient is “from a BLS 1 cell line, a Na cell line or an Ab cell line.” Thus, claim 2 has been amended according to the Examiner’s suggestion, and Applicants request that this objection be withdrawn. In addition, claim 5 has been cancelled herein, thereby rendering any objections to this claim moot.

4. Specification

The Examiner has objected to certain informalities in the specification. In particular, the Examiner has objected to embedded hyperlinks at pages 55-57 of the specification. The Examiner has also objected to sequence disclosures on page 67 of the specification that do not include SEQ ID NO: tags. The Examiner has requested substitute paper and electronic copies of the Sequence Listing in compliance with the requirements set forth in 37 C.F.R. 1.821-1.825. Finally, the Examiner has objected to the use of the terms “new” and “novel” in the Title and Abstract of the Disclosure in the instant specification.

Applicants note that the hyperlinks have been removed from pages 55-57 of the specification, and the terms “new” and “novel” have been removed from the Title and the Abstract of the Disclosure. Applicants have also added SEQ ID NO: tags to the sequence disclosures at page 67 of the instant specification.

In addition, Applicants submit herewith electronic and paper copies of the Substitute Sequence Listing, along with a Statement in Support of the Substitute Sequence Listing, in compliance with 37 C.F.R. 1.821-1.825. Accordingly, Applicants request that the Examiner withdraw these objections.

5. Priority

The Examiner has acknowledged Applicants' claim for foreign priority based on European Application No. EP 98120085.0, filed in Europe on October 24, 1998.

A certified copy of this application has been ordered, and Applicant will forward a copy shortly.

6. Information Disclosure Statement

The Examiner has indicated that the listing of references in the specification is not a proper information disclosure statement. Applicants note that Applicants' previous representatives filed an Information Disclosure Statement citing each of the references listed on pages 74-86 of the instant specification on October 4, 2001. A supplemental communication was sent to the Examiner on October 5, 2001, in which Applicants' previous representatives explained that the PTO Form 1449A had been inadvertently omitted from the IDS filed on October 4, 2001. Applicants believe that the filing on October 5, 2001 constitutes an Information Disclosure Statement in compliance with 37 C.F.R. 1.97-1.98. For the Examiner's convenience, Applicants have provided courtesy copies of the previously submitted Information Disclosure Statement and accompanying PTO Form 1449A.

7. Claim Rejections -- 35 U.S.C. § 112, first paragraph

Written Description

Claims 1-3, 5-6 and 62-66 have been rejected under 35 U.S.C. §112, first paragraph. In particular, the Examiner has asserted that the instant specification does not provide adequate written description for the genus of peptides capable of restoring MHC-II expression in cells from MHC-II deficiency patients in complementation group B, for the genus of homologous, non-human proteins capable of restoring MHC-II expression in cells from MHC-II deficiency patients in complementation group B, or for the genus of peptides that has at least 80% or 90% identity, similarity or homology with the amino acid sequence shown in Figure 2.

Applicants traverse. Claim 1 has been amended herein to recite an isolated protein or peptide that includes the amino acid sequence of SEQ ID NO: 11 (shown in Figure 2), wherein

the claimed protein or peptide is capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B. As acknowledged by the Examiner, the instant specification does disclose, in Figure 2, a protein that contains the amino acid sequence of SEQ ID NO:11 and is capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B. (See Office Action, page 4, ¶A3). Thus, claim 1, and its dependent claims (including claims 2 and 3), are supported by the instant specification, and this rejection should be withdrawn.

Applicants note that claims 5-6 and 63-66 have been cancelled herein. Therefore, any rejection of these claims has been rendered moot and should be withdrawn.

Claim 62 has been amended herein to recite an isolated protein or peptide that has at least 95% identity or similarity with the amino acid sequence of SEQ ID NO: 11, wherein the claimed protein or peptide is capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B and wherein the claimed protein or peptide includes an ankyrin-repeating region having an amino acid sequence that includes amino acid residues 122-222 of SEQ ID NO: 11.

Thus, as amended herein, claim 62 is not directed to *any* homologous, identical or similar proteins or peptides having all or part of the amino acid sequence shown in Figure 2 (*i.e.*, SEQ ID NO: 11). Rather, these claims are directed to a specific set of proteins or peptides that (i) have at least 95% similarity or identity to the amino acid sequence of SEQ ID NO: 11, (ii) are capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B, and (iii) contain ankyrin repeats. The specification discloses derivatives of the amino acid sequence shown in Figure 2, wherein the derivatives are capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B. (See *e.g.*, at page 11, lines 26-30 and at page 15, lines 1-4). In addition, the specification and the as-filed drawings disclose and identify the ankyrin repeat regions of the isolated proteins or peptides of the instant invention. For example, Figures 3a and 3b depict three ankyrin repeats, labeled ank 1, ank 2 and ank 3, which correspond to amino acid residues 122-155, 156-188 and 189-222, respectively, of SEQ ID NO: 11 (shown in Figures 2, 3a and 3b). Accordingly, claim 62 is supported by the instant application, and Applicants request that the Examiner withdraw this rejection.

Enablement

Claims 1-3, 5-6 and 62-66 have also been rejected under 35 U.S.C. §112, first paragraph. The Examiner contends that these claims lack enablement for any peptide or protein capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B, for any homologous, non-human protein or peptide capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B, or for any protein or peptide having at least 80% or 90% identity, similarity or homology with the amino acid sequence shown in Figure 2, other than SEQ ID NO: 11.

Applicants traverse. As described above, claim 1 has been amended herein to recite an isolated protein or peptide that includes the amino acid sequence of SEQ ID NO: 11 (shown in Figure 2), wherein the claimed protein or peptide is capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B. Applicants contend that the instant disclosure is enabling for a protein or peptide having the amino acid sequence of SEQ ID NO: 11 (shown in Figure 2), wherein the protein or peptide is capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B. In fact, the Examiner has acknowledged that the instant specification is enabling for the proteins and peptides recited by amended claim 1. (*See* Office Action, page 5, ¶B1). Thus, claim 1 and its dependent claims (including claims 2 and 3) are enabled by the instant specification, and this rejection should be withdrawn.

Applicants note that claims 5-6 and 63-66 have been cancelled herein. Thus, any rejection of these claims has been rendered moot and should be withdrawn.

As described above, claim 62 has been amended herein to recite an isolated protein or peptide that has at least 95% identity or similarity with the amino acid sequence of SEQ ID NO: 11, wherein the claimed protein or peptide is capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B and wherein the claimed protein or peptide includes an ankyrin-repeating region having an amino acid sequence that includes amino acid residues 122-222 of SEQ ID NO: 11. Thus, claim 62 is not directed to *any* protein or peptide that is at least 95% identical or similar to the amino acid sequence of SEQ ID NO: 11 (shown in Figure 2). Rather, these claims are drawn to a specific set of proteins or peptides that

(i) have at least 95% similarity or identity to the amino acid sequence of SEQ ID NO: 11, (ii) are capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B, and (iii) contain ankyrin repeats.

As amended, claim 62 recites unique functional and structural limitations of proteins or peptides that fall within its scope. One of ordinary skill could, with routine experimentation, determine which polypeptides fall within the claims and those which do not, by applying the specific and definite criteria expressly recited in the claims. Accordingly, Applicants contend that claim 62 is enabled by the instant specification and request that the Examiner withdraw this rejection.

Claim 2 has also been rejected under 35 U.S.C. § 112, first paragraph. According to the Examiner, "it is apparent that cell lines BLS1, Na and Ba are required to practice the claimed invention," and therefore, these cell lines must be readily available to the public, obtainable by a repeatable method set forth in the specification or deposited under the terms of the Budapest Treaty.

First, Applicants traverse. Cell lines BLS1, Na and Ba are not required to practice the claimed invention. The claimed invention is directed to peptides and proteins that are capable of restoring MHC-II expression in a cell from an MHC-II deficiency patient in complementation group B. The cell can be from any cell line from an MHC-II deficiency patient in complementation group B. Thus, these three cell lines (*i.e.*, the BLS-1, Na and Ab cell lines) are examples of cell lines that can be used in the claimed invention – these cell lines are not, however, the only cell lines that can be used in the claimed invention.

Second, claim 2, as amended herein, is directed to a protein or peptide having the amino acid sequence of SEQ ID NO: 11 (shown in Figure 2) and capable of restoring MHC-II expression in a cell, wherein the cell from an MHC-II deficiency patient is "from a BLS 1 cell line, a Na cell line or an Ab cell line." The Ab, Na, and BLS1 cell lines are well-known cell lines and readily available to the public, as demonstrated in the art, *see e.g.* Seidl *et al.*, J. Immunol. 148: 1576-84 (1992); Lisowska-Groszpiere, *et al.*, J. Clin. Invest. 76: 381-85 (1985); Herrero-Sanchez *et al.*, Mol. Cell. Biol. 12: 4076-83 (1992) respectively. Accordingly, these cell lines satisfy the enablement requirements of 35 U.S.C. § 112, first paragraph, and Applicants request that the Examiner withdraw this rejection.

8. Claim Rejections -- 35 U.S.C. § 112, second paragraph

Claims 2 and 64-66 have been rejected under 35 U.S.C. §112, second paragraph. In particular, the Examiner has asserted that there is insufficient antecedent basis for the limitation "Ba cell line" in line 2 of claim 2, as the specification repeatedly refers to the cell line Ab.

Applicants note that claim 2 has been amended herein to recite the term "Ab cell line", as suggested by the Examiner. Accordingly, Applicant request that the Examiner withdraw this rejection.

In addition, the Examiner has asserted that claims 64-66 are indefinite in their recitation of the term "functional part." The Examiner has also asserted that claims 65-66 are also indefinite in their recitation of the phrases "at least 80 % homology" and "at least 90% homology," as the criteria for determining percent homology has not been disclosed in the specification.

Applicants also note that claims 64-66 have been cancelled herein. Thus, all rejections of these claims have been rendered moot and should be withdrawn.

8. Claim Rejections -- 35 U.S.C. § 102

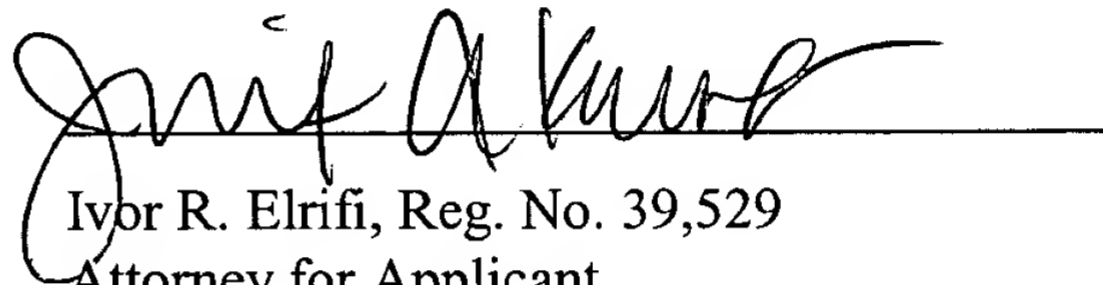
Claims 1-3, 5-6 and 62-66 have been rejected under 35 U.S.C. §102(e) as anticipated by United States Patent No. 5,989,863, issued to Tang et al. ("Tang"). According to the Examiner, Tang teaches "a human ankyrin family protein (designated ANFP) that consists of an amino acid sequence (SEQ ID NO:1)" that is identical to the amino acid sequence shown in Figure 2 of the instant application.

Applicants traverse. Applicants submit herewith a Declaration of Krzysztof Masternak, Walter Reith and Bernard Mach under 37 C.F.R. §1.131, which demonstrates that the proteins and peptides of the claimed invention were reduced to practice prior to October 14, 1998, the filing date of Tang. Accordingly, Tang is unavailable as prior art in the instant application (which claims priority to European Patent Application No. 98120085.0, filed October 24, 1998), and Applicants request that the Examiner withdraw this rejection.

CONCLUSION

On the basis of the foregoing amendments, Applicants respectfully submit that the pending claims are in condition for allowance. If there are any questions regarding these amendments and remarks, the Examiner is encouraged to contact the undersigned at the telephone number provided below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Ivor R. Elrifi", is written over a horizontal line.

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